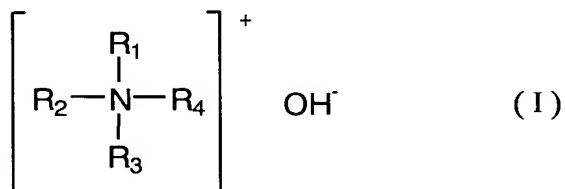


WHAT IS CLAIMED IS:

1. A cleaning liquid used in a process for forming a dual damascene structure comprising steps of etching a low dielectric layer accumulated on a substrate having thereon a metallic layer to form a first etched-space; charging a sacrifice layer in the first etched-space; partially etching the low dielectric layer and the sacrifice layer to form a second etched-space connected to the first etched-space; and removing the sacrifice layer remaining in the first etched-space with the cleaning liquid, wherein the cleaning liquid comprises (a) 1 - 25 mass% of a quaternary ammonium hydroxide represented by the following general formula (I), (b) 30 - 70 mass% of a water soluble organic solvent, and (c) 20 - 60 mass% of water:



wherein  $R_1$ ,  $R_2$ ,  $R_3$  and  $R_4$  each independently represents an alkyl group having 1 - 4 carbon atoms or a hydroxyalkyl group having 1 - 4 carbon atoms.

2. The cleaning liquid as claimed in claim 1, wherein the sacrifice layer comprises a spin-on-glass material.

3. The cleaning liquid as claimed in claim 2, wherein the spin-on-glass material contains a light absorbing substance.

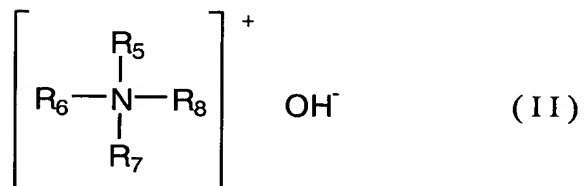
4. The cleaning liquid as claimed in claim 1, wherein component (a) is tetramethylammonium hydroxide and/or

(2-hydroxyethyl)trimethylammonium hydroxide.

5. The cleaning liquid as claimed in claim 1, wherein component (b) is dimethyl sulfoxide.

6. The cleaning liquid as claimed in claim 1, wherein the cleaning liquid comprises 8 - 12 mass% of component (a), 40 - 60 mass% of component (b), and 30 - 50 mass% of component (c).

7. The cleaning liquid as claimed in claim 1, wherein the cleaning liquid further comprises (d) a mercapto group-containing compound, and/or (e) a quaternary ammonium hydroxide represented by the following general formula (II), with the proviso that component (e) differs from component (a):



wherein  $R_5$ ,  $R_6$ ,  $R_7$  and  $R_8$  each independently represents an alkyl group having 1 - 20 carbon atoms or a hydroxyalkyl group having 1 - 20 carbon atoms, provided that at least one of  $R_5$ ,  $R_6$ ,  $R_7$  and  $R_8$  represents an alkyl group having 10 or more carbon atoms, or at least two of  $R_5$ ,  $R_6$ ,  $R_7$  and  $R_8$  each independently represents a hydroxyalkyl group having 2 - 5 carbon atoms.

8. A process for treating a substrate having a dual damascene structure comprising steps of: etching a low dielectric layer accumulated on a substrate having thereon a metallic layer to form a first etched-space; charging a sacrifice layer in the first etched-space; partially etching the low dielectric layer and the sacrifice layer to form a second etched-space connected to the first etched-space; and bringing the sacrifice layer remaining in the first etched-space in contact with a cleaning liquid as

claimed in any one of claims 1 - 7 to remove the sacrifice layer.